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09/838,493	04/19/2001	Dinesh Chopra	303.658US1	8948

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EXAMINER

NGUYEN, KHIEM D

ART UNIT	PAPER NUMBER
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2823

DATE MAILED: 08/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Advisory Action

Application No.

09/838,493

Applicant(s)

DINESH CHOPRA

Examiner

Khiem D Nguyen

Art Unit

2823

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 19 July 2004 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

## PERIOD FOR REPLY [check either a) or b)]

- a) ☒ The period for reply expires 4 months from the mailing date of the final rejection.  
b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection. See MPEP 706.07(f).  
ONLY CHECK THIS BOX WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION.

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☐ A Notice of Appeal was filed on \_\_\_\_\_. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.

2. ☐ The proposed amendment(s) will not be entered because:

- (a) ☐ they raise new issues that would require further consideration and/or search (see NOTE below);  
(b) ☐ they raise the issue of new matter (see Note below);  
(c) ☐ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or  
(d) ☐ they present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: \_\_\_\_\_

3. ☐ Applicant's reply has overcome the following rejection(s): \_\_\_\_\_.  
4. ☐ Newly proposed or amended claim(s) \_\_\_\_\_ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).  
5. ☒ The a) ☐ affidavit, b) ☐ exhibit, or c) ☒ request for reconsideration has been considered but does NOT place the application in condition for allowance because: See Continuation Sheet.  
6. ☐ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.  
7. ☒ For purposes of Appeal, the proposed amendment(s) a) ☐ will not be entered or b) ☒ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: none.

Claim(s) objected to: none.

Claim(s) rejected: 1-9, 11-14, 16-41 and 43-57.

Claim(s) withdrawn from consideration: none.

8. ☐ The proposed drawing correction filed on \_\_\_\_\_ is a) ☐ approved or b) ☐ disapproved by the Examiner.  
9. ☐ Note the attached Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_.  
10. ☐ Other: \_\_\_\_\_

W. DAVID COLEMAN  
PRIMARY EXAMINER

Continuation of 5. does NOT place the application in condition for allowance because: In response to Applicant's argument that the combination of Lopatin and Chen does not teach or suggest a method that uses an anode that includes material, where a cation species of the material is used in the first electrolyte, Examiner respectfully disagrees. Applicant is directed to (col. 5, line 19 to col. 6, line 54 and FIG. 3, Lopatin) where Lopatin discloses depositing a dual purpose layer 232 on the substrate 200 wherein the first purpose is to serve as a barrier layer and a second purpose is to serve as a seed layer (col. 5, lines 42-47, Lopatin), and electrochemically depositing a conductive interconnect layer 236 on the surface of the dual-purpose layer using a second electrolyte (col. 5, line 62 to col. 6, line 43, Lopatin). Although, Lopatin does not explicitly disclose electrochemically reducing oxides on the surface of the dual-purpose layer using a first electrolyte where the first electrolyte includes a cation species of material of an anode in an electrochemical reaction cell, the secondary reference, Chen, U.S. Patent 6,632,345 discloses enhancing the dual-purpose layer using a first electrolyte where the first electrolyte includes a cation species of material of an anode in an electrochemical reaction cell where in the first electrolyte is copper sulfate (col. 5, lines 15-31, Chen). Additionally, Chen teaches that Chloride ions with organic additives could also be used to produce desired film characteristics and provide better filling of the recessed structures on the wafer surface. subsequently, the trench 5 is substantially filled with a layer of electrochemically deposited copper 22 (col. 6, line 50 to col. 7, line 9 and FIGS. 1-3, Chen). Thus, Lopatin in combination with Chen does disclose the Applicant's claimed invention such that an anode includes material, where a cation species of the material is used in the first electrolyte. Therefore, one of ordinary skill in the art at the time of the invention was made would combine Lopatin and Chen to obtain an excellent conformal copper coating that allows trenches and vias to be subsequently filled with a copper layer having good uniformity using electrochemical deposition techniques (col. 3, lines 33-44, Chen). For these reasons, Examiner holds the rejection proper.